STANDARDS RELATED DOCUMENT

ACMP-2009-SRD-51

NCI AGENCY CM TOOLS

Edition A Version 1
MARCH 2017

NORTH ATLANTIC TREATY ORGANIZATION

Published by the
NATO STANDARDIZATION OFFICE (NSO)

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

6 March 2017

1. The enclosed Standards Related Document, ACMP-2009-SRD-51, Edition A Version 1, NCI AGENCY CM TOOLS, which has been approved in conjunction with ACMP-2009, by the nations in the AC/327 Life Cycle Management Group, is promulgated herewith.

2.

3. This publication shall be handled in accordance with C-M(2002)60.

Edvardas MAŽEIKIS
Major General, LTUAF
Director, NATO Standardization Office

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ACMP-2009-SRD-51 NCI Agency CM Tools

General:

Every profession has its “tools of the trade” and Configuration Management is no different. The CM Toolbox consists of tools used to initiate, plan, execute and control Configuration Management processes and requirements.
The CM Toolbox provides the Program Managers with CM techniques, templates, forms and other useful information to develop and implement efficient and effective Configuration Management requirements.

Introduction:

The tools provided in this SRD have been taken from the NATO Communications and Information Agency (NCI Agency), are non-mandatory outside of the Agency, are offered as examples, and should be adapted to the reader’s specific program needs.

Table of Contents

SRD-51.1. CDRLs and DIDs

The contract data requirements list (CDRL) is a list of authorized data requirements for a specific procurement that forms a part of the contract. In essence, CDRLs identify what data products are to be formally delivered to the Acquirer by a contractor, as well as when and possibly how (e.g. format and quantity) they are to be delivered. It consists of either a single, or a series of individual CDRL forms containing data requirements and delivery information. The CDRL is the standard format for identifying potential data requirements in a solicitation, and deliverable data requirements in a contract. The purpose of the CDRL is to provide a standardized method of clearly and unambiguously delineating the Acquirer's minimum essential data needs. The CDRL groups all of the data requirements in a single place rather than having them scattered throughout the solicitation or contract.

CDRLs should be linked directly to statement of work (SOW) tasks and managed by the program office data manager. Data requirements can also be identified in the contract via special contract clauses, which define special data provisions such as rights in data, warranty, etc. Work requirements should be specified in the SOW, and all data requirements for delivery, format, and content should be in the contract data requirements list in conjunction with the appropriate Data Item Description (DID) respectively, with none of the requirements restated in other parts of the contract."

Commonly, most items produced or used as part of production of the work described in the SOW are identified using the name of pre-defined data item descriptions (DID). The CDRL process allows for tailoring, which is defined as identifying which part of a DID are not applicable to the specific contract and may explain how the DID will be applied without otherwise altering the DID. The CDRL form provides a block for simple citation of which DID it is, as well as where it is mentioned in the SOW and what part(s) of the overall work breakdown structure it is involved with.

Writers of a SOW often include requirements that belong in other parts of a contract. Specifically, quantitative technical requirements are addressed in the military specification and work requirements are specified in the SOW, and data requirements (e.g., delivery, format, and content) should be in the CDRL along with the appropriate DID to minimize the potential for conflict

SRD-51.1.1. Contract Data Requirement List

1. General Instructions

(1) The contents of this Contract Data Requirements List (CDRL) contains a complete list of the data deliverables required by the Statements of Work (SOW). Instructions for the preparation of data delivered under this contract are in block 8, "Preparation Instructions", of the (Annex K) Data Item Description (DID) referenced by, and if necessary tailored by, the appropriate CDRL Data Item form. The Supplier shall not deviate from the requirements of the DIDs, tailored or untailored, without the approval of the Acquirer's Contracting Authority.

(2) Unless otherwise specified, the effective date for data delivery shall be as specified in the CDRL Data Item form. Delivery dates for CDRL Data Items with elements common to another Acquirer's CDRL Data Item(s) may be adjusted as necessary to achieve synchronized CDRL Data Item delivery among the [SOI] contracts.

(3) Unless otherwise specified, the submittal date stated on the CDRL Data Item form is the required date of arrival of the data at the offices specified in block 17 of the form. Distribution to other recipients of the data shall be made on the same date. Delivery dates falling on non-working days (Saturday, Sunday, Acquirer legal holidays) shall be construed to mean the first calendar day following such non-working days.

(4) All reports and other data submittals under this contract shall be prepared in the format(s) specified in block 17 of the CDRL Data Item form. Where specified, deliveries may be made in Supplier Format which shall be subject to Acquirer Approval.

(5) Transmittal letters shall be forwarded to the Acquirer's Project Information Centre (PIC). Each Transmittal letters shall contain the CDRL Data Item title, sequence number, date of transmittal and Supplier's transmittal letter number, and shall include a list showing addressees, distribution made, number of copies distributed and in which format (optical disk and CALS standards, paper, etc)

(6) The transmittal letters shall identify the type of submissions (e.g. draft, final, resubmission of draft, change pages etc).

(7) All correspondence relating to data items shall reference the contract CDRL Data Item number.

(8) Data subject to Acquirer's approval, as specified on the CDRL Data Item form, will be responded to in writing. Such response will be issued by the Acquirer's Contracting Authority. Data will be responded to within 45 calendar days after Acquirer's receipt unless otherwise noted in the CDRL and as noted below in section 9. The Acquirer's PIC will report the Acquirer's receipt date to the Supplier by returning a signed data transmittal letter for both unclassified and classified data.

(9) The following items are exempt from the **45 calendar** day approval cycle:

a. Engineering Change Proposals (ECPs)

b. Deviations and Waivers

c. Specifications will be **60 calendar** days unless otherwise agreed. (Product, Software, etc.)

d. Work Share Plan will be **90 calendar** days for initial delivery and **70 calendar** days for subsequent submissions.

(10) The Acquirer reserves the right to approve, approve with comments or reject CDRL Data Item submittals. In addition, the Acquirer reserves the right to declare its willingness to approve CDRL submittals upon resolution of comments to the satisfaction of the Acquirer. In the case of such declarations of willingness, the Acquirer review of the resubmitted CDRL will normally be limited to those portions affected by comments that were identified in the letter of declaration, or the resolution of those comments or otherwise changed. When a submittal is approved with comments the Supplier shall submit change pages for paper copies, and the entire document for electronic copies, incorporating the Acquirer's comments. For paper copies, if the comments require changes to more than 25% of the data in question, the Supplier shall submit a complete revision.

(11) CDRL Data items which have been approved with comments or disapproved shall be revised to address/include the Acquirer's comments and shall be resubmitted, or change pages shall be provided, for approval, within 45 calendar days. These resubmittals shall not be regarded as subsequent submittals as specified in block 10 of the CDRL Data Item form.

(12) The Supplier shall take care not to unnecessarily duplicate data. Potential or actual instances of unnecessary duplication shall be identified to the Acquirer. The Supplier is encouraged to recommend deletions, additions, substitutions, consolidations and use of other formats for the data, when such actions will aid the Acquirer in obtaining the minimum essential data in a timely and cost effective manner.

(13) N/A.

(14) Data that are dependent on events which may or may not occur during the performance of the contract shall be submitted on an "as required" basis.

(15) Requirements for periodic revisions to data, where no changes have occurred since the dates of last submission, may be satisfied by a letter from the Supplier stating that "... no changes have occurred since the last submission." In such cases, the Supplier will identify the data in question, the reporting period, and the data transmittal letter number and the date of the last previous submittal.

(16) Questions regarding preparation and contents of CDRL Data Item forms may be directed to NCIA.

(17) N/A.

(18) Replication CDRL Data Item Deliveries.

a. Upon exercise of the replication option(s), the Supplier shall provide contract data as required by the SOW tasks applicable to the replication option(s).

i. Periodic CDRL data items (i.e. a specific period of time is stated in Block 9, Frequency, of the CDRL Data Item form, or the delivery is tied to a period event, such as Programme Management Reviews (PMRs)) shall address replication in full detail starting with the first delivery after the first full reporting period after option exercise. The first delivery shall cover the period from option exercise to the end of the first full reporting period. For example, a monthly status report would begin addressing replication in full detail in the report covering the first full 30 day period after option exercise, plus any part of the previous period which follows option exercise.

ii. Previously submitted CDRL data items that change/expand for replication (e.g. System Engineering Management Plan (SEMP), Software Development Plan (SDP)), shall be resubmitted to address replication in full detail after option exercise. Previously submitted CDRL Data Items that do not change/expand for Replication shall not be resubmitted. The conditions are addressed on a case by case basis in the respective CDRL Data Items page under block No 16 (Remarks).

iii. CDRL Data items that will be unique for each replication site (e.g. adaptation software specifications/design CDRL data items) shall be provided for each replication site after option exercise.

b. For CDRL data item deliveries tied to a milestone (a.ii. and a.iii. above), the CDRL data item shall be delivered relative to the milestone corresponding to each replication site. CDRL Data item deliveries tied to sPDR and sCDR in the basic contract shall be tied to the combined PDR/CDR for each site in the replication option. Subsequent submissions shall be required I.A.W. paragraph (20) below. If there is not a corresponding milestone for replication, and if the CDRL Data Item does not otherwise specify a submission date for replication, the Supplier shall provide revisions where required by the CDRL Data Item i.a.w. paragraph 19 below.

c. For CDRL Data Items that were previously delivered in paper (hardcopy) under the basic contract and are required to be modified/expanded to address replication after option exercise, the Supplier may submit change pages to those addressees who received the previous version provided that not more than 25% of the pages have changed. The Supplier shall provide the complete paper (hardcopy) CDRL Data Item to addressees who did not receive previous versions. All softcopy submissions shall contain the complete document.

(19) Revisions. The CDRL Data Item form specifies the requirement for revisions in Block 9, Frequency, for certain CDRL data items. The Supplier shall provide revisions for such CDRL data items within 45CD of significant changes to the data within that CDRL data item. Such CDRL data item changes may be due to changes in planning or schedule, progress of development,

contract changes (e.g. exercise of options, incorporation of ECPs), etc. Revised Standard Generalised Mark-up Language (SGML) data items shall contain a list in the front of the CDRL data item of all the revisions in the data item compared to the previous version.

The revised text of the CDRL data item shall be marked with change bars, new text shall be highlighted and deleted text shall marked with strike through. Marking is not required for tool generated data items if the tool does not provide this facility."

(20) General Instructions for the Submission of CDRL Data Items.

a. Automated Techniques. Use of automated techniques is encouraged. The CDRL Data Item form specifies: whether the data are to be delivered on paper or electronic media; any requirements on the electronic representation (such as Continous Acquisition and Life-cycle Support (CALS), SGML or compatibility with a specified word processor or other support software); whether the data may be delivered in developer format rather than in the format specified herein; and whether the data may reside in a Computer-Aided Software Engineering (CASE) or other automated tool rather than in the form of a traditional document. The term "document" in the CDRL Data Items and DIDs means a collection of data regardless of its medium and the term “page” means a paper page or a Window on a VDU.

b. Paper Page Size. Traditional documents shall be on A4 size paper except for tables, etc, which may be on appropriate sized metric paper.

c. Alternate Presentation Styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required can be made more readable using these styles.

d. Title Page or Identifier. When data are delivered in the form of a traditional document or SGML, the document shall include a title page containing, as applicable; document number; volume number; version/revision indicator; bar-coded identifier in accordance with contract requirements, security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL Data Item number; organisation for which the document has been prepared; name and address of the preparing organisation; and distribution statement. For data delivered in an alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

e. Table of Contents. When data are delivered in the form of a traditional document, the document shall contain a table of contents providing the number, title and page number of each titled paragraph, figure, table and appendix. For data delivered in SGML this information shall be available via the document “element” hierarchy. For data delivered in an alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

f. Page Numbering/Labelling. When data are delivered in the form of a traditional document, each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data delivered in an alternative form, files, screens, or other entities shall be assigned names, numbers or SGML element names and “IDs” in such a way that desired data can be indexed and accessed.

g. Response to Tailoring Instructions. When data are delivered in the form of a traditional document, paragraphs that have been tailored out of the DID shall result in the corresponding paragraph number and title in the document, followed by "This paragraph has been tailored out". For data delivered in an alternative form, this representation need occur only in the table of contents or equivalent.

h. Paragraphs and Subparagraphs. Any section, paragraph or subparagraph in the DIDs may be written as multiple paragraphs or subparagraphs to enhance readability. All paragraphs or subparagraphs shall be numbered using the US legal format.

i. Standard Data Descriptions. If a data description required by a DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

j. Security Markings. Security markings shall be in accordance with the Security Regulations within NATO, CM(55)15 Final for Validation Sites and CM(2002)49 for Replication Sites.

2. Explanation of Contract Data Requirements List (CDRL) Items

Block No.	Title	Explanation
1	Annex	Identifies the contract SOW annex of which the CDRL Data Item forms a part.
2	Of Contract	Contract Number.
3	For System	Title of the system being procured.
4	Supplier	Name of the Supplier.
4a	CDRL Number	Number used to identify the CDRL Data Item in this contract.
5	Title or Description of Data	Title of the DID where the requirements for the CDRL Data Item are defined.
6	Subtitle	Amplification of DID title, if necessary, to make it specific to the application.
7	Data Item Description Number	Reflects the complete Data Item Description Number. The final alpha character indicates a revision.
8	Date of First Submission	The initial data submission date is entered as follows: Day-Month-Year (for example, "02-Jan-96" not 02-01-96). If data have already been submitted and will be resubmitted, the date of the next submission is entered. If data are constrained by a specific event or milestone, this constraint is entered. If contract start date is not known, the number of days after contract start that the data are due is entered (example: "ECD+20CD for 20 Calendar days after Effective Contract Date"). If this date is not known or requires further clarification, Block 16 is used. If deferred delivery is involved, "Deferred Delivery" is entered.
9	Frequency	The following are the terms used in this block: Daily Calendar Days or CD Annually Weekly Semi Annually Bi weekly One time Monthly One time & revisions Bi monthly Revisions as required Quarterly As required Change pages as required 2 separate submittals Deferred delivery X separate submittals One time preliminary draft If data are of a recurring type, they will be submitted at the end of the report period established in this block unless otherwise indicated in Blocks 16. Use of the term "as required" is further amplified in Block 16 to define the as required conditions.
10	Date of Subsequent Submissions/Event Identification	If data are submitted more than once, the dates of subsequent submissions are entered. If data are constrained by a specific event or milestone, this constraint is entered. (Example: Not later than fifteen (15) calendar days after end of the month, (End of Month + 15CD; not less than thirty (30) calendar days before Preliminary Design Review, (sPDR-30 CD)). IF THIS INFORMATION CLASSIFIES THE DATA LIST, IT IS LEFT BLANK.
11	As of Date	If the data are submitted only once, the "AS OF" date (cut date) is entered as follows: Day/Month/Year ("5 Mar 97" rather than "5/3/97"). If the data are of a recurring type, the number of days prior to the end of the report period is entered; for example, "15" places the "as of" date for this report at 15 days before the end of each month, quarter, or year depending upon the frequency established in Block 9; "O" places the "as of" date at the end of each month, quarter, etc (Block 16 is used for further explanation).
12	Technical Office	Office responsible for advising on the adequacy of the data.
13	Receipt Required	Is the Acquirer required to inform the Supplier of receipt.

Block No.	Title	Explanation
14	Approval required	A "Yes" in this block indicates that the Acquirer will provide written approval/disapproval of Supplier submittals unless otherwise stated in block 16. The Acquirer has the inherent right to disapprove any Supplier submittals even in the absence of a "Yes" in this block.
15	Contract References	References the contract Statement of Work paras, etc., which calls for the Data Item.
16	Remarks	Entered in this field is all pertinent Data Item Description information not specified elsewhere on the form and any required amplification of other block inputs. This may include Data Item Description modifications, special packaging and delivery information, amplification of "deferred" status, etc.
17	Distribution	Entered here are: a. the office to whom the CDRL data item is to be delivered, b. the address of the office identified in a. above, c. the required delivery format in which the CDRL data item should be submitted, and d. the number of copies to be submitted. Note: The copies to be delivered will be in electronic form, unless otherwise indicated on the CDRL form.

3. Sample of CDRL Form

CONTRACT DATA REQUIREMENTS LIST				
1. Annex Text	2. Of Contract Text	3. For System [SOI]	4. Supplier Text	4a. CDRL No Text
5. Title or Description of Data Text	6. Subtitle Text		7. Data Item Description Number Text	
8. Date First Submission Text	9. Frequency Text	10. Subsequent Submissions Text		11. As of Date Text
12. Technical Office Text	13. Receipt Required Text		14. Approval Required Text	
15. Contract References Text				
17. DISTRIBUTION				
Office	Address	Format	No Copies	
Text	Text	Text	Text	

16. Remarks

Text

4. Non-Exhaustive List of CDRL Names

CDRL ID	ID #	Title	Subtitle
CMCAC0	C-100	Supplier's Approach to Continuous Acquisition And Life Cycle Support	N/A
CMCAIMS0	C-101	Supplier's ACCS Information Management System Database	N/A
CMCCMP0	C-102	Supplier Configuration Management Plan	N/A
CMCFBPB0	N-103	Critical Item Product Fabrication Specification	Product Baseline
CMCFUPB0	N-104	Critical Item Product Function Specification	Product Baseline
CMCISDB0	N-105	Critical Item Development Specification	Allocated Baseline
CMECP0	N-106	Engineering Change Proposal	N/A
CMERR0	N-107	Engineering Release Record	N/A
CMINVPB0	N-108	Inventory Item Specification	Product Baseline
CMIRSDB0	N-109	Interface Requirements Specification	Allocated Baseline
CMIRSFB0	N-110	Interface Requirements Specification	Functional Baseline
CMMATPB0	N-111	Material Specification	Product Baseline
CMPFBPB0	N-113	Prime Item Product Fabrication Specification	Product Baseline
CMPFUPB0	N-114	Prime Item Product Function Specification	Product Baseline
CMPISDB0	N-115	Prime Item Development Specification	Allocated Baseline
CMPROPB0	N-116	Process Specification	Product Baseline
CMRFC0	N-117	Request For Concession	N/A
CMSPSPB0	N-120	Software Product Specification	Product Baseline
CMSRSDB0	N-121	Software Requirements Specification	Allocated Baseline
CMESSFB	N-122	Entity/Site Specification	Functional Baseline
CMRAR	N-124	Requirements Analysis Report	N/A
CMDATEX	N-125	CM Status Accounting Data	Functional, Allocated and Product Baseline
CMAUDITPL	N-126	CM Audit Plan	N/A
CMAUDITREP	N-127	CM Audit Report	N/A
SWCPUS0	N-200	COTS Product Upgrade Status	N/A
SWDBDD0	N-201	Database Design Description	Volume 1. Conceptual Data Analysis Volume 2. Logical DB Design Volume 3. Structural DB Design Volume 4. Physical DB Design
SWIDD0	N-202	Interface Design Description	Product Baseline
SWISEED0	N-203	Integrated Software Engineering Environment Description	1. Supplier's Integrated Software Engineering Environment Description 2. Transition analysis
SWSAD0	N-204	Software Architecture Description	N/A
SWSDD0	N-205	Software Design Description	Product Baseline 1. CSCI-Wide Design Decisions 2. CSCI-Architectural Design 3. CSCI Detailed Design
SWSDF0	N-206	Software Development File	N/A
SWSDP0	C-207	Software Development Plan	N/A
SWSEMP0	C-208	Systems Engineering Management Plan	N/A
SWKIL0	N-209	Key Issue List (KIL)	
SWSSDD0	N-210	System/Subsystem Design Description	1. System Architectural Design - System Level 2. System Architectural Design - Generic Level 3. Sub-System Architectural Design - Generic Level 4. Sub-System Architectural Design - Site-Specific Level
SWSSTAR0	N-211	Software Sizing and Timing Analysis Report	N/A
SWSVD0	N-212	Software Version Description	Product Baseline
HFHEDAD0	N-300	Human Engineering Design Approach Document - Operator	1. HF Engineering 2. HMI Engineering
HFOTA0	N-301	Operational Task Analysis Report	N/A
HWCDD0	N-302	Conceptual Design Drawings and Associated Equipment Lists	N/A
HWDDD0	N-303	Developmental Design Drawings and Associated Equipment Lists	N/A
HWPD0	N-304	Product Drawings and Associated Equipment Lists	Product Baseline
HWPDR0	N-305	PFE Deficiency Report	N/A

CDRL ID	ID #	Title	Subtitle
SECTFM0	N-307	Trusted Facilities Manual	N/A
SSEHAZR0	N-308	System Safety Hazard Analysis Report	N/A
SSEPROP0	C-309	System Safety Programme Plan	N/A
SPABD0	N-310	As Built Drawings	N/A
SPCWRD0	N-311	Civil Works Requirement Drawings	N/A
SPIEP0	N-312	Installation Engineering Plan and Site Activation Plan	N/A
ILSASRL0	N-400	ACCS Software Reuse Library Manuals	N/A
ILSCLSP0	C-401	Supplier Logistic Support Plan	N/A
ILSCLSR0	N-402	Supplier Logistic Support Maintenance Report	N/A
ILSCOD0	C-403	Codification Data	N/A
ILSCOTS0	N-405	Commercial Off-The-Shelf Manuals	N/A
ILSCPM0	N-406	Computer Programming Manual	N/A
ILSFACR0	N-407	Facility Requirements Report	N/A
ILSFSM0	N-408	Firmware Support Manual	Product Baseline
ILSISUP0	C-409	Integrated Support Plan	N/A
ILSLSAP0	C-410	Logistic Support Analysis Plan	N/A
ILSLSAX0	C-411	Logistic Support Analysis Record	Data Table Exchange Delivery
ILSLSP0	C-412	LSA Support Plan	N/A
ILSMPTR0	N-413	Consolidated Manpower, Personnel, Training and New Job Descriptions Report	N/A
ILSPACP0	C-415	Packaging and Transportation Plan	N/A
ILSPPSP0	C-416	Post-Production Support Plan	N/A
ILSPRTD0	N-417	Provisioning Technical Documentation	N/A
ILSSAIP0	N-418	Recommended Provisioning Lists	N/A
ILSSERD0	N-419	Support Equipment Recommendation Data	N/A
ILSSSOM0	N-420	Support Site Operation Manual	N/A
ILSSSUM0	N-421	Support Software User Manual	Product Baseline
ILSSTRP0	C-422	Software Transition Plan	1. Transition Planning 2. Software Support Resources, Recommended Procedures and Anticipated areas of change.
ILSTM0	N-423	Technical Manuals	Non-COTS Manuals
ILSTMCR0	N-424	Technical Manual Validation Completion Report	N/A
ILSTMPP0	C-425	Technical Manual Publication Plan	N/A
ILSTMVP0	C-426	Technical Manual Validation Plan	N/A
ILSTRAP0	C-427	Training Plan	N/A
ILSTRAS0	C-428	Packaging, Handling, Storage and Transportability Summary	N/A
ILSTRCR0	C-429	Trainee and Training Course Completion Report and Certificates of Training	N/A
ILSTRDP0	C-430	Training Programme Development and Management Plan	N/A
ILSTRMT0	N-431	Training Documentation	N/A
RAMFMEA0	C-434	Failure Modes Effects and Critical Analysis Report	N/A
RAMMANR0	C-435	Maintainability Analysis Report	N/A
RAMMEVR0	C-436	Maintainability Evaluation Report	N/A
RAMMNTY0	C-437	Maintainability Modelling, Allocation and Prediction Report	N/A
RAMMODL0	C-438	Reliability and Availability Mathematical Model(s) and Report	N/A
RAMPROP0	C-439	Reliability, Availability, Maintainability, Testability and Safety Programme Plan	N/A
RAMSTAR0	C-440	Reliability, Availability, Maintainability and Testability Programme Status Report	N/A
PMACCP0	N-500	Acceptance Plan	N/A
PMCONFA0	N-501	Conference Agenda	See 16.1
PMCONFM0	N-503	Conference Minutes	See 16.1
PMMANP0	C-505	Programme Management Plan	Master Programme Management Plan
PMMIPS1	C-508	Master Integrated Program Schedule	
PMSMMR0	C-509	Software Management Metrics	N/A
PMTREP0	N-510	Technical Report	a. Task Order Progress Report b. Trade-off Study Analysis Report
PMTREP1	C-511	Communication Engineering Technical Report	N/A
PMWSP0	N-512	Work Share Plan	N/A

CDRL ID	ID #	Title	Subtitle
PPBCPR0	N-513	Supplier's Progress, Status and Man-Month Effort Report	N/A
PPBCWBS0	N-514	Contract Work Breakdown Structure	N/A
TQACTMP0	C-600	Supplier Test and Evaluation Master Plan	N/A
TQAOATR0	C-616	Operational Availability Test Report	N/A
TQAQAP0	C-617	Quality Assurance Plan	N/A
TQASIP0	N-622	Software Installation Plan	N/A
TQASIR0	N-623	Software Installation Report	N/A
TQASUM0	N-626	Software User Manual	Test Tools
TQATD10	N-628	Test Description	Product Baseline
TQATP10	N-632	Test Plan	Product Baseline
TQATR10	N-636	Test Report	Product Baseline
TQATRR0	N-639	Traceability Report	Product Baseline
TQATRRR0	N-640	Test Readiness Review Report	N/A
TQAVCRI0	N-641	Verification Cross Reference Index	Functional Baseline

SRD-51.1.2. Data Item Descriptions

A full list of DIDs can be obtained from the NCI Agency, however, below are some of those most frequently used:

SUPPLIER CONFIGURATION MANAGEMENT PLAN	NATO-DI-CMCCMP
ENGINEERING CHANGE PROPOSAL	NATO-DI-CMECP
ENGINEERING RELEASE RECORD	NATO-DI-CMERR
REQUEST FOR CONCESSION	NATO-DI-CMRFC-117
CONFIGURATION STATUS ACCOUNTING DATA	NATO-DI-CMDATEX-125
CM FUNCTIONAL AND PHYSICAL AUDIT PLAN	NATO-DI-CMAUDITP-126
CM FUNCTIONAL AND PHYSICAL AUDIT REPORT	NATO-DI-CMAUDITR-127

<table>
<tr><td colspan="3">NATO DATA ITEM DESCRIPTION</td></tr>
<tr><td>1. Title
SUPPLIER CONFIGURATION MANAGEMENT PLAN</td><td>2. Identification Number
NATO-DI-CMCCMP</td><td>Based on
US-DOD-DI-CMAN-80858A</td></tr>
<tr><td colspan="3">3. Description / Purpose
3.1. The Supplier Configuration Management (CM) Plan describes the Supplier's configuration management program, how it is organised, how it will be conducted, and the methods, procedures and controls used to assure effective configuration identification, change control, status accounting, and audits of the total configuration, including hardware, software and firmware. The principal use is to provide the Acquirer a basis for review, evaluation, and monitoring of the CM program and its proposed components.</td></tr>
<tr><td colspan="2">4. Not Used</td><td>5. Office of Primary Responsibility
NATO/SSD/CMB</td></tr>
<tr><td colspan="3">6. Application / Interrelationship
6.1. This DID contains the format, content and preparation instructions for a data item resulting from work tasks described in the [SOI] CM Plan.</td></tr>
<tr><td colspan="3">7. Applicable Forms
N/A</td></tr>
</table>

8. Preparation Instructions

8.1. Reference documents. The applicable issue of the document cited herein, including its approval date and the date of any applicable amendments, notices, revisions, shall be as specified in the contract.

NATO DATA ITEM DESCRIPTION		
1. Title ENGINEERING CHANGE PROPOSAL	2. Identification Number NATO-DI-CMECP	Based on US-DOD-DI-CMAN-80639A

3. Description / Purpose

3.1. An Engineering Change Proposal (ECP) includes both engineering change and the documentation by which the change is described and suggested.

3.2. An ECP describes changes to configuration items and associated configuration documentation that are affected by the proposed engineering change.

4. not used	5. Office of Primary Responsibility

6. Application / Interrelationship

6.1. This Data Item Description (DID) contains the format, content and preparation instructions for Class 1 and Class 2 engineering changes as described in the [SOI] CM Requirement Document. This DID is used in conjunction with a Notice of Revision (NOR). A requirement for NORs should be contractually imposed in conjunction with this DID.

7. Applicable Forms

N/A

8. Preparation Instructions

8.1. Reference Documents. The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices and revisions, shall be as specified in the contract.

8.2. Format and content.

a. The Engineering Change Proposal format and content shall be in accordance with Appendix 4 of the [SOI] CM Requirements Document (CMRD).

b. The NOR shall be in accordance with Appendix [X] of the [SOI] CMRD.

NATO DATA ITEM DESCRIPTION		
1. Title ENGINEERING RELEASE RECORD	2. Identification Number NATO-DI-CMERR	Based on US-DOD-DI-CMAN-80463
3. Description / Purpose 3.1. The Engineering Release Record (ERR) is used to officially release all new or revised configuration documentation required to establish the functional, development and product baselines or to update the configuration documentation.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data product resulting from the work task described in the [SOI] CMRD.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Reference Document. The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract

8.2. Format and Content. The ERR format shall be the in accordance with the [SOI] CMRD.

NATO DATA ITEM DESCRIPTION		
1. Title REQUEST FOR CONCESSION	2. Identification Number NATO-DI-CMRFC-117	Based on US-DOD-DI-CMAN-80640A
3. Description / Purpose 3.1. A Request for Concesiion describes a proposed (prior to or after manufacture) departure from configuration documentation for a specific number of units or for a specified period of time 3.2. A Request for Concession enables the Acquirer to determine the impact on performance, operational readiness, logistics support or other affected areas.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data product resulting from the work task described in the [SOI] CMRD.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1 Reference Documents.

(1) The applicable issue of any documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

8.2 Format and Content.

(1) The Request for Concession format and content shall be in accordance with the [SOI] CMRD

NATO DATA ITEM DESCRIPTION		
1. Title CONFIGURATION STATUS ACCOUNTING DATA	2. Identification Number NATO-DI-CMDATEX-125	Based on N/A
3. Description / Purpose 3.1. The CMDATEX Schema is used to define the Configuration Status Accounting (CSA) data exchange schema to be used between the Suppliers and Acquirer CSA Systems.		
4. Not Used	5. Office of Primary Responsibility	
6. Application / Interrelationship 6.1. This Data Item Description (DID) contains the format, content and preparation instructions for the data exchange of Configuration Status Accounting data between the Supplier and Acquirer.		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1 The [SOI] Data Exchange Specifications (DEXs) shall enable the transmission of information reporting on (foolowing an example of information which could be requested):

a. DEX related to as-specified configuration (DTC401),
b. DEX related to as-designed configuration (DTC403),
c. DEX related to the links between as-specified and as-designed configuration (DTC402),
d. DEXs related to as-built configurations (DTC086 HW, SW including license information),
e. DEX related to functional Configuration Items,
f. DEX related to Parts,
g. DEX related to functional Software,
h. DEX related to technical data,
i. DEX related to related documentation,
j,. DEX related to substitutes.

8.2 The [SOI] to be provided under this DID, shall include the following sections:

a. Terms provides a definition of terms used in this DEX;
b. Scope outlines the scope of the information covered by the DEX;
c. ISO 10303-239 Activity model uses the ISO 10303-239 Activity model to illustrate the business activities that are supported by the DEX;
d. Business overview provides a high level overview of the business process / application that this DEX is intended to support;
e. Business information overview provides a high level overview of the business information that can be represented by this DEX;
f. Business information requirements provides a more detailed overview of the information that the business process / application described in Business overview requires;
g. ISO 10303-239 representation provides technical details of how the business information requirements identified in Business information requirements are represented in using ISO 10303-239 PLCS;
h. Template lists all the templates that are used in the definition of this DEX;
i. Schemas identifies the information models that define the DEX, namely:
j. Reference data lists the reference data classes used by this DEX;
k Conformance defines the requirements for applications to conform to this DEX.

8.3.

NATO DATA ITEM DESCRIPTION		
1. Title CM FUNCTIONAL AND PHYSICAL AUDIT PLAN	2. Identification Number NATO-DI-CMAUDITP-126	Based on N/A
3. Description/Purpose The DID provides a generic outline to be used to produce a Functional and Physical Configuration Audit (FCA/PCA) Plan. The Audit Plan may be tailored by the Supplier to the extent needed to cover CIs or Systems if such is specified.		
4. Not Used	5. Office of Primary Responsibility	
6. Application/Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

The CM Functional and Physical Configuration Audit Plan shall be prepared in accordance with the requirements of the [SOI] CMRD.

The following outline should be used in order to prepare Configuration Audit Plans.

1. Scope of the Document

(1) This section describes the scope of the document.

2. Purpose of the FCA/PCA

(1) This section states the purpose and objectives of the audit, it should identify the contract and SOW references, the system, the Configuration items to be audited and tentative dates as indicated in the MIPS.

3. Reference Documents

(1) This section should list any relevant document, including their approved dates and dates of any applicable amendments, notices, and revisions, for the audit.

4. Conduct of the Audit

4.1 Scope of the FCA/PCA

(1) This section details the exact scope of the audit by:

a. A summary of the hardware contractual requirements against which the audit will be conducted as specified in work statements, specifications and approved plans;

b. An outline of the proposed audit procedure for each item to be audited.

4.2 Configuration Audity Process Flowchart

(1) This section provides a chart of the Audit Activituy model.

4.3. Location(s) and date(s)/Schedule

(1) This section provides a detailed audit schedule for all audit phases.

(2) This section describes the locations and tentative dates for the audits.

5. Organisation

5.1 Acquirer Representatives

a. Acquirer participants and their function in the audit.

5.2 Supplier Representatives

a. Supplier representatives and their function in the audit.

5.3 Administrative Requirements

a. Description of facilities and support equipment to be available;
b. Administrative support to be available;
c. Security requirements.

5.4 Required Accomplishments prior to the Audit

(1) This section should identify specific events that have to be accomplished to ensure a successful audit.

a. The FCA/PCA date should be established at least 60 days prior to the audit. This date should be coordinated with the Acquirer. Date:_____
b. The designated representative should formally solicit support from the concerned disciplines and functional experts. This should be accomplished once a specific date is approved. Date letters sent: _____
c. The contract should be reviewed at least 45 days prior to the audit to determine what requirement are on contract, what data items are due prior to FCA and PCA; whether they require approval actions, and the status of delivery/approval of the data. Date of Review:_____
d. The Supplier should provide a matrix for each CI at the FCA that identifies the requirements of sections three and four of the specifications; including a cross reference to the test plan, test procedures, and test report, results of demonstrations, inspections, and analyses for each requirement; and identifying each deficiency by deficiency report number.
e. All team members should be identified by Name at least three weeks prior to the audit.
f. A preparatory meeting should be held at least one week before the scheduled audit. At this meeting team members will be assigned specific responsibilities to be accomplished at the FCA/PCA.
g. The audit shall be conducted using MIL-STD-973 or MIL-HDBK-61A as guidance. Minutes, Checklists, Action Item Tracking Forms and Audit Reports are to be provided by the Supplier in the defined format.
h. Explain how action items will be tracked for completion.

5.5 Acquirer Acceptance Criteria for the Configuration Audit

(1) This section describes the Supplier / Acquirer agreed acceptance criteria for the Configuration Audit

Annex A

FCA/PCA Checklists

Annex B

FCA/PCA Reporting

NATO DATA ITEM DESCRIPTION		
1. Title CM FUNCTIONAL AND PHYSICAL AUDIT REPORT	2. Identification Number NATO-DI-CMAUDITR-127	Based on N/A
3. Description/Purpose The DID provides a generic outline to be used to produce a Functional and Physical Configuration Audit (FCA/PCA) Report.		
4. Not Used	5. Office of Primary Responsibility	
6. Application/Interrelationship N/A		
7. Applicable Forms N/A		

8. Preparation Instructions

8.1. Completion of the FCA/PCA

(1) After completion of the FCA/PCA, the Supplier shall publish and distribute copies of FCA/PCA Report.

(2) The Supplier shall submit a FCA and a PCA Completion Report to the Acquirer for final signature.

8.2. Format and Content of the Minutes and the Completion Report

(1) The format and content of the Reports are to be defined by the Supplier in coordination with the Acquirer.

SRD-51.2. Forms

SRD-51.2.1. NATO Engineering Change Proposal (ECP) Form

INSTRUCTIONS FOR THE PREPARATION OF
ENGINEERING CHANGE PROPOSALS
UTILIZING NATO FORM ECP

1. GENERAL

1.1 SCOPE. This Instruction establishes uniform requirements for the preparation of the NATO Form "Engineering Change Proposal". This Instruction is a mandatory part of the standard.

1.2 APPLICATION. The provisions of this Instruction apply whenever NATO Form ECP is utilized.
The activity submitting the request for change shall prepare and submit NATO Form ECP together with one or more NATO Form(s) (Notice of Revision) for each affected document. An authorized alternative to these forms is allowable if approved by both the supplying and acquiring activities.

2. PARAGRAPH NOT USED.

3. PARAGRAPH NOT USED.

4. PARAGRAPH NOT USED.

5. DETAILED REQUIREMENTS. Detailed instructions for completion of the NATO Form ECP.

Page 1 is required for all ECP submittals. Continuation Pages 2-7 are generally required for ECPs classified as Major and when necessary to fully describe the change and change impacts.

Block 1. Date submitted. Enter the submittal or preparation date of the ECP (e.g. 15 Apr 2010). Revised ECPs shall have the date of the revision entered.

Block 2. Procuring Activity Number (PAN). To be used by the procuring activity for entry of internal processing number if required.

Block 3. ECP No. Enter the originator internal ECP or tracking number if used. Rev. Enter Revision if ECP has been revised.

Block 4. Title of Change. Enter a title of the recommended change.

Block 5. Class of ECP. Enter the ECP class.

Block 6. Priority. Enter the ECP Priority.

Block 7. ECP Type. Enter the ECP Type.

Block 8. Justification Code. Enter the Justification Code.

Block 9. Description of Change. Enter a description of the proposed change.

Block 10. Need for Change. Describe the need for change.

Block 11. Model/Type. Enter the model or type designation, e.g. M16, Mk48, F22, etc.

Block 12. System Designation. Enter the system designation, e.g. Rifle, Torpedo, Fighter, etc.

Block 13. Affected Item Nomenclature. Enter the nomenclature of the specific item affected by the change, i.e. bracket assembly.

Block 14.a. Other External System Affected. If the proposed change impacts another system (e.g., interfacing system, training device, and test sets), check yes in this field.

Block 14.b. List other Systems Affected. If block 14a is checked yes, list other systems affected.

Block 15.a-d. All Lower or Higher Items Affected. If the change to the item affects a higher or lower level component or assembly, list the item nomenclature, part number, NSN (if a stocked item) and NCAGE here.

Block 16a-f. Documents Affected. Enter the Document NCAGE Code, Document No., Nomenclature,
Current Rev, and NOR No. (BLK 16e.) of the affected document(s), i.e. specifications, drawings, MBD datasets, parts list, packaging data, quality assurance provisions, or other document being modified. If the Alternate Change Process is used, indicate the location of attachments of proposed documents in a format suitable for immediate release upon approval (BLK 16f).

Block 17. Baseline Affected. Enter the baseline affected.

Block 18. In Production. Check whether the item is in production.

Block 19. Effectivity. If necessary, enter the lot number, serial number, or date at which the change is to take effect.

Block 20. Effect on Production Delivery Schedule. Enter the effect on production delivery schedule as a result of approval or non-approval of the change.

Block 21.a. Recommend Retrofit to Existing Assets. Check YES if retrofit of existing assets (as-built or as maintained configurations) is recommended. Check NO otherwise.

Block 21.b. Describe Retrofit Requirements. If Block 21.a. is YES, describe retrofit requirements. Use continuation page if necessary.

Block 21.c. Cost Impact. Check YES if there is a cost impact to the ECP. Cost impact is any increase or decrease in cost as a result of the ECP. Impact may be on an instant, future, or concurrent contract; cost impact on a related or interfacing component; cost impact on life cycle logistics or acquisition; or any other life cycle cost impact.

Block 21.d. Describe Cost Impact. If Block 21.c. is YES, describe cost impacts. Use either pages 2-7 of ECP form, or additional attachment to ECP to describe cost impact.

Block 22.a-b. Contract Information. Enter the contractor name and contract no./line item.

Block 23.a-c. Contracting Officer: Enter the name, phone no. and email of procuring contracting officer.

Block 24.a-e. Originator. Enter originator name, address, phone no., email, and CAGE Code of the
originator.

Block 24.f-h. Submitting Activity. Enter the submitting activity and the signature, name and title of the individual authorized to submit the change.

Block 25.a-d. Recommendations. Enter the recommended disposition, name, title, signature, and date signed.

Block 26.a-d. Disposition. The Configuration Change Approval Authority shall enter the final disposition, name, title, signature, and date signed.

Block 27.a-c. Activity Accomplishing Revision Upon New Revision Release. Once new revision(s) have been prepared in accordance with the approved change and released via ERR or other means, the activity accomplishing new revision release(s) shall sign and date here.
Instructions associated with Page 2 of ECP continuation form, Effects on Functional/Allocated Configuration Documentation. The information for these Blocks is to be completed only if the proposed change affects the system specification or the item development specification(s). If a separate product function specification is used, effects on such specification of changes proposed after the product baseline has been established shall be described as required by Block Number 37 through 50.
PAN and ECP numbers for all continuation pages. Enter the same PAN number in Block 2 and ECP number as in Block 12 of NATO ECP Form (Page 1).

Block 28. Other systems affected. Insert data when Block 14a of NATO ECP Form is checked "yes".

Block 29. Other contractors/activities affected. Identify the other contractors or Government activities which will be affected by this engineering change.

Block 30. Configuration items affected. Enter the names and numbers of all CIs, maintenance and operator training equipment, and support equipment affected.

Block 31. Effects on performance allocations and interfaces in system specification. Describe the changes in performance allocations and in the functional/physical interfaces defined in the system specification.

Block 32. Effects on employment, integrated logistic support, training, operational effectiveness, or software.
a. Hardware: Describe the effects of the proposed change on employment, deployment, logistics, and/or personnel and training requirements which have been specified in the

approved system and/or CI specifications, including any changes or effects on the operability of the system. In particular, there shall be an entry detailing any effect on interoperability.
b. CSCIs: Enter the following information as applicable to the degree of design development of the
CSCI at the time of ECP submission:
(1) Identify any required changes to the database parameters or values, or to database management procedures;
(2) Identify and explain any anticipated effects of the proposed change on acceptable computer operating time and cycle-time utilization;
(3) Provide an estimate of the net effect on computer software storage; and,
(4) Identify and explain any other relevant impact of the proposed change on utilization of the system.

Block 33. Effects on configuration item specifications. The effect(s) of the proposed change on performance shall be described in quantitative terms as it relates to the parameters contained in the CI development specifications.

Block 34. Developmental requirements and status.
a. Hardware: When the proposed engineering change requires a major revision of the development program (e.g., new prototypes, additional design review activity, tests to be re-accomplished), the nature of the revised or modified development program shall be described in detail, including the status of programs already begun.

b. CSCIs: The contractor shall identify the scheduled sequence of computer software design and
test activities which will be required. ECPs initiated after preliminary design which affects the FBL
and/or the ABL shall identify, as appropriate, significant requirements for computer software redesign, recoding, repetition of testing, changes to the software engineering/test environments, special installation, adaptation, checkout, and live environment testing. In addition, the specific impact of these factors on approved schedules shall be identified. The impact of the software change on the hardware design and input/ output cabling shall also be detailed.

Block 35. Trade-offs and alternative solutions. A summary of the various solutions considered shall be included with an analysis showing the reasons for adopting the solution proposed by the ECP.

Block 36. Date by which contractual authority is needed. Enter the date contractual authority will be required in order to maintain the established schedule. Instructions associated with ECP Continuation page 3, Effects on product configuration documentation, logistics and operations. Certain information required for these blocks may have been required in Blocks 1 through 36 or does not apply to computer software. When this information has already been supplied, a cross-reference to such information will be adequate.
a. Hardware: If any specific logistic interoperability factors are affected, the contractor shall provide information detailing the possible impact on the operational configuration on an attached page.
b. CSCIs: The software engineering and test environments are usually not affected by changes in the product configuration of a CSCI. In Block 42, the contractor shall provide information about the status of the software redesign and retesting effort. There shall also be a review of the intent of Blocks
40, 41, 45, 46, 47 and 49, to document CSCI impacts in these areas.

Block 37. Effect on product configuration documentation or contract. The effects on the approved CI product specifications shall be described by reference to the NORs or other enclosure(s) which cover such proposed text changes in detail. The effects on elements such as performance, weight and moment which are covered in the enclosure(s), shall be indexed by proper identification adjacent to the factor affected.
The effects on drawings, when not completely covered on Page 1, shall be described in general terms by means of a referenced enclosure. Such enclosure may consist of a list of enclosed NORs if submittal of an NOR for each drawing affected is a requirement of the contract. Indicate any technical data submittal which is not provided for in the CDRL by means of a referenced enclosure. Address nomenclature change when applicable.

Block 38. Effect on Integrated Logistics Support (ILS) elements. The effects of the engineering change on logistic support of the item shall be indicated by checking the appropriate boxes. These effects shall be explained in detail on an enclosure indexed by appropriate identification adjacent to the subject under discussion. The information required shall indicate the method to be used to determine the integrated logistic support plans and items which will be required for the support of the new configuration as well as retrofitting previously delivered items to the same configuration. The following shall be covered as applicable:
a. Effect(s) on schedule and content of the ILS Plan.
b. Effect(s) on maintenance concept and plans for the levels of maintenance and procedures.
c. System and/or CI Logistics Support Analysis (LSA) tasks to be accomplished and LSA data requiring update wherever it exists in the contract.
d. Extension/revision of the interim support plan.
e. Spares and repair parts that are changed, modified, obsolete or added, including detailed supply data for interim support spares.
f. Revised or new technical manuals.
g. Revised or new facilities requirements and site activation plan.
h. New, revised, obsoleted or additional Support Equipment (SE), test procedures and software.
For items of SE and trainers which require change, furnish a cross reference to the related ECPs, and for any related ECP not furnished with the basic ECP, furnish a brief description of the proposed change(s) in SE and trainers.
i. Qualitative and quantitative personnel requirements data which identify additions or deletions to operator manpower in terms of personnel skill levels, knowledge and numbers required to support the CI as modified by the change.
j. New operator training requirements in terms of training equipment, trainers, and training software for operator courses. This information should include identification of specific courses, equipment, technical manuals, personnel, etc. required to set up the course at either the contractor or Government facility.
k. Qualitative and quantitative personnel requirements data which identify additions or deletions to maintenance manpower in terms of personnel skill levels, knowledge and numbers required to support the CI as modified by the change.
l. New maintenance training requirements in terms of training equipment, trainers and training software for maintenance courses. This information should include identification of specific courses, equipment, technical manuals, personnel, etc. required to set up the course at either the contractor or Government facility.
m. Any effect on contract maintenance that increases the scope or dollar limitation established in the contract.
n. Effects on packaging, handling, storage, and transportability resulting from changes in materials, dimensions, fragility, inherent environmental or operating conditions.

o. Any effect on provisioning data such as part number or NSN changes, etc.

Block 39. Effect on operational employment. The effects of the engineering change of CI utilization shall be indicated by checking the appropriate factors and providing details by enclosures. Quantitative values shall be used whenever practicable but are required when reliability and service life are impacted. Survivability includes nuclear survivability.

Block 40. Other considerations. The effects of the proposed engineering change on the following shall be identified on an enclosure indexed by appropriate identification adjacent to the factor affected:
a. Interfaces having an effect on related items, (output, input, size, mating connections, etc.).
b. Other affected Equipment, Government Furnished Equipment (GFE) or Government Furnished
Data (GFD) changed, modified or made obsolete.
c. Physical constraints. Removal or repositioning of items, structural rework, increase or decrease in overall dimensions.
d. Software (other than operational, maintenance, and training software) requiring a change to existing code and/or, resources or addition of new software.
e. Rework required on other equipment not included previously which will affect the existing operational configuration.
f. Additional or modified system test procedures required.
g. Any new or additional changes having an affect on existing warranties or guarantees.
h. Changes or updates to the parts control program.
i. Effects on lifecycle cost projections for the configuration item or program, including projections of operation and support costs/savings for the item(s) affected over the contractually defined life and projections of the costs/savings to be realized in planned future production and spares buys of the item(s) affected.

Block 41. Alternate solutions. A summary of the various alternative solutions considered, including the use of revised operation or maintenance procedures, revised inspection or servicing requirements, and revised part replacement schedules shall be included. The contractor shall provide an analysis of the alternatives, identify the advantages and disadvantages inherent in each feasible alternative approach, and show the reasons for adopting the alternative solution proposed by the ECP. When the contractor's analysis addresses new concepts or new technology, supporting data (to include LSA if contractually required) should be presented with the proposal to authenticate the trade-off analysis.

Block 42. Developmental status. When applicable, the contractor shall make recommendations as to the additional tests, trials, installations, prototypes, fit checks, etc., which will be required to substantiate the proposed engineering change. These recommendations shall include the test objective and test vehicle(s) to be used. The contractor shall indicate the development status of the major items of GFE which will be used in conjunction with the change and the availability of the equipment in terms of the estimated production incorporation point.

Block 43. Recommendations for retrofit. When applicable, the contractor shall make recommendations for retrofit of the engineering change into accepted items with substantiating data, any impacts, and a brief description of the action required. Where retrofit is not recommended, an explanation of this determination shall be provided. Reference shall be made to any enclosure required to state recommended retrofit effectivity (See Block 23a).

Block 44. Work-hours per unit to install retrofit kits. Complete Blocks 44a through 44d to show the amount of work which must be programmed for various activities to install retrofit kits. Estimate work-hours to install retrofit kits.

Block 45. Work-hours to conduct system tests after retrofit. Enter the work-hours required to test the system or the item following installation of the retrofit kit.

Block 46. This change must be accomplished before, with or after the following changes. Where engineering changes must be incorporated in a specific sequence in relation to the proposed change, such sequence should be specified.

Block 47. Is contractor field service engineering required? Check applicable box. If "yes" attach proposed program for contractor participation.

Block 48. Out of service time. Estimate the total time period from removal of the equipment from operational service until equipment will be returned to operational status after being retrofitted.

Block 49. Effect of this ECP and previously approved ECPs on item. The contractor shall summarize the cumulative effect upon performance, weight, electrical load, etc., of this ECP and previously approved ECPs when design limitations are being approached or exceeded.

Block 50. Date contractual authority needed. The contractor shall provide the date by which contractual authority to proceed is needed to maintain the estimated effectiveness specified in the ECP and provide concurrent ILS and logistics support item deliveries.
Instructions associated with Page 4, estimated net total cost impact. Block 51 is intended as the summary of the estimated net total cost/savings impact of a single ECP. In Blocks 51a through d, each cost factor associated with the ECP shall be considered as to whether such cost or portion thereof under the subject contract is recurring or nonrecurring. Enter cost savings in columns (a) and (d) as applicable, using entries in the "unit" and "quantity" columns when appropriate. Savings shall be enclosed with parentheses.
Other costs/savings to the acquiring activity resulting from approval of this ECP shall be entered in column (f) to the extent these costs can be determined by the contractor. This estimate of cost impact will be used for planning purposes and for a cost reduction or VECP analysis as to the net saving that would result.

Block 51. Estimated Costs/Savings Summary, Related ECPs.

Block 51a. Production costs/savings. Enter the estimate of costs/savings applicable to production of the CI resulting from incorporation of the change. Show redesign costs for the CI in the block titled "engineering, engineering data revisions" when the item is in production. Enter the projected lifecycle
costs/savings applicable to the planned production and spares buys of the item that are not yet on contract on the CONFIGURATION ITEM/CSCI line in Column (f). Enter the subtotal of production costs (both nonrecurring and recurring) in the fifth column.

Block 51D. Retrofit costs. Enter the estimate of costs applicable to retrofit of the item, including installation and testing costs. When Government personnel accomplish, or are involved in, the installation and/or testing activities, the estimated costs shall be entered in column (f) on the effected lines. Show design costs of the retrofit kit and data revision costs strictly related to retrofit when the CI is in production; show all redesign and data revision costs when the item is not in production. Costs of modifications required to existing GFE and

subsequent testing also shall be shown. Enter the subtotal of retrofit costs in the fifth column. If some or all of the retrofit activities and costs will have to be deferred and placed on contract at a future date, show that deferred portion of the cost applicable to each line of Block 51b in column (f).

Block 51c. Integrated logistic support costs/ savings. Enter the estimated cost of the various elements of ILS applicable to the item covered by the ECP. On the line titled "interim support," estimated costs shall be entered based upon the period of time between initial installation/operation of the item (e.g., aircraft and tank) as modified by the ECP and Government attainment of support capability. Such "interim support" costs shall include costs estimates of contractor recommended/provided spares and repair parts, special support equipment, training equipment and personnel training program. On the line titled "maintenance manpower" shall be entered the estimated costs/ savings for the contracted maintenance support for the remainder of existing maintenance contracts. Other ILS costs/savings associated with ILS elements for which appropriate titles do not appear in Block 51c may be entered in place of a factor not used unless such costs are covered on ECP Form (Page 5) or in related ECPs.
Enter the subtotal of ILS costs/savings in column (e). Enter the operation and support portion of the lifecycle cost/savings on the subtotal line in column (f).

Block 51d. Other costs/savings. If there are other costs under the contract which do not fall under the production, retrofit or ILS headings, enter the total of such costs in Block 51d, column (e). If there are other additional costs to the Government which do not fall under the production, retrofit or ILS headings or under Block 51g, "coordination changes by Government, enter the total of such costs in
Block 51d, column (f).

Block 51e. Subtotal costs/savings. Enter the subtotals of columns (a), (d), (e), and (f) on this line. The subtotal in column (e) shall be the sum of columns (a) and (d). This subtotal under the contract then shall be entered on the line so titled in column (f) and on DD Form 1692 (Page 1), Block 24.

Block 51f. Coordination of changes with other contractors. This term applies to interface changes to items other than GFE, and changes to GFE being covered under 51D. If such coordination changes are covered by related ECPs and summarized on DD Form 1692/4 (Page 5), the estimated costs thereof shall not be entered in Block 51f. However, if Page 5 is not required, or if costs of certain coordination changes are not tabulated on Page 5, an estimate of such costs shall be entered in Block 51f, when available.

Block 51g. Coordination changes by Government. Enter in this block an estimate of the cost to the
Government of interface changes which must be accomplished in delivered items (e.g., aircraft, ships, and facilities) to the extent such costs are not covered in Block 51b or on DD Form 1692/4 (Page 5).
Block 51h. Estimated net total costs/savings. Enter the sum of all cost savings on column (f) and on ECP Form (Page 1), Block 25.
Instructions associated with Page 5, Estimated costs/savings summary, related ECPs.

Block 52 is intended as the summary of the estimated net total cost impact of both the package of related ECPs and other associated new requirements which are needed to support the modified items. A few revised requirements for ILS, such as ILS plans and maintenance concepts do not appear as headings in Block 51.

When only a single ECP is involved, these additional costs for revision of ILS plans, etc. should be shown in Block 51 under the ILS heading, and Block 52 may be omitted.
a. Responsibility for preparation:
(1) Prime contractor. The prime contractor shall summarize the costs/savings of all related ECPs for which the contractor is responsible in Block 52. If there is no system integrating contractor, the prime contractor submitting the basic ECP shall include the costs of related ECPs being submitted by other affected contractors to the extent such information is available.
(2) System integrating contractor. When a system integrating contractor (or coordinating contractor) has contractual responsibility for ECP coordination, the contractor shall summarize the costs of related ECPs of the several primes involved in an interface or interrelated ECP on NATO Form ECP in Block 52 and shall attach it to the ECP package.
b. Summarization techniques. The costs of certain related ECPs are entirely ILS costs. Thus costs of ECPs for trainers, other training equipment and SE shall be listed in total under the "ILS costs" heading. Other ECPs (applicable to weapons, aircraft, tanks, subsystems thereof) shall be split into the four subtotals of "production," "retrofit," "ILS," and "other costs" for entry in Block 52. The sum of the four subtotals attributed in Block 52, column (c), to an individual ECP should agree with the subtotal of costs/savings under contract, line e, column (e) of Block 51 of that ECP. Cost breakdowns should be arranged in such manner that costs/savings are neither included more than once on the summary nor omitted. The purpose of the grouping on the cost summary is to arrive at a total ILS cost, and a net total cost of all actions for the complete group of related ECPs.
c. Software changes only. Block 52 shall not apply in the case where all related ECPs being summarized refer to software changes only. However, Block 52 shall be provided with the ECP detailing the summary of the individual CSCI costs/savings for each of the related ECPs, grouped by the cost areas, and providing the total costs/savings for all of the related software ECPs.

Block 52a. Production costs/savings. Enter the ECP number in column (b). Enter the production subtotals from columns (e) and (f) of Block 51a of each ECP applicable to weapons, aircraft, tanks, subsystems thereof, etc. in columns (c) and (d) respectively. (NOTE: Total costs of ECPs on trainers, training equipment, and SE are entered in Block 52c.)

Block 52b. Retrofit costs. Retrofit costs may be charged by the Government to production funds or maintenance funds or may be split between the two. The type of funds used depends upon the phase in the item's lifecycle. If the practice of the Government in this regard is known to the originator of Page 5, retrofit costs shall be entered in, or split between, Blocks 52b and 52.c.1, as appropriate. If such practice is unknown, enter in Block 52b the ECP number and the retrofit subtotals from the columns (e) and (f) of Block 51b for each applicable ECP.

Block 52c. ILS costs/savings. Enter retrofit costs in Block 52.c.1, if appropriate. Enter in Block 52.c.2 the ILS subtotals from columns (e) and (f) of Block 51c of each ECP applicable to weapons, aircraft, tanks, subsystems thereof, etc. Enter costs of ECPs for ILS items in Blocks 52.c.3, 4, 5 and 6. Enter costs of revision or preparation of ILS plans and LSA records for the CI or complete system in Block
52.c.7. Enter in Block 52.c.9 costs of revision of the interim support plan to the extent such costs have
not already been covered under Block 51c of NATO ECP Form (Page 4) of the applicable ECPs. Enter in Blocks 52.c.10 through 52.c.18 the costs of all new requirements for ILS not covered by ECPs, such costs being broken down into nonrecurring and recurring costs, as appropriate, and totalled in column (c).

Block 52d. Other costs/savings. Enter in Block 52d the sum of the "other costs" totals from column (e) and (f) of Block 51d of each ECP applicable to weapons aircraft, tanks, subsystems thereof, etc. Enter the subtotals of columns (c) and (d) on this line. The subtotal under contract(s) shall then be entered on the line so titled in column (d).

Block 52e. Estimated net total costs/savings. Enter the sum of the preceding two lines of column (d).

Block 53. NCAGE code. Enter the NCAGE code for the activity originating the ECP.

Block 54. Configuration item nomenclature. Enter the information from Block 13.

Block 55. Title of change. Enter the information from Block 4.
Block 56. Milestone chart. Enter the symbols (see legend on form), as appropriate for the activity, to show the time phasing of the various deliveries of items, support equipment, training equipment, and documentation incorporating the basic and related ECPs. Enter other symbols and notations to show the initiation or termination of significant actions. All dates based upon months after contractual approval of the basic ECPs.
Instructions associated with Page 6 and 7, "Engineering Change Proposal (Hardware) and (Software).
See 5.4.2.3.5 for information as to when Blocks 56 and 60 are required. (An equivalent format may be substituted, when appropriate.) Block 56 (for hardware-only ECPs) and Block 60 (for software-only
ECPs) shall be used instead to summarize the detailed events schedule. If the ECP impacts both hardware and software, both Blocks 56 and 60 shall be included, as appropriate.

Block 57. NCAGE Code. Enter the NCAGE code for the activity originating the ECP.

Block 58. CSCI nomenclature. Enter the CSCI name and identification number if applicable, or authorized name and number of the CI(s) affected by the ECP.

Block 59. Title of change. Enter the information from Block 4.

Block 60. Milestone chart. Enter the symbols (See legend on form.), as appropriate for the activity, to show the time phasing of the various deliveries of items, training equipment and documentation incorporating the basic and related ECPs. Enter other symbols and notations to show the initiation or termination of significant actions. All dates are based upon months after contractual approval of the basic ECP.

SRD-51.2.2. NATO Notice of Revision (NOR) Form

INSTRUCTIONS FOR THE PREPARATION OF
NOTICE OF REVISION
UTILIZING NATO FORM NOR

1. GENERAL

1.1 SCOPE. This Instruction establishes uniform requirements for the preparation of the NATO Form “Notice of Revision”. This Instruction is a mandatory part of the standard.

1.2 APPLICATION. The provisions of this Instruction apply whenever NATO Form NOR is utilized as part of an Engineering Change Proposal submitted under the standard change process. Submittal of NORs is not required when submitting changes under the alternate change process described in paragraph 5.5.12.

2. GENERAL REQUIREMENTS.

2.1 Use of NATO NOR Form. The activity submitting the request for change shall prepare and submit NATO NOR (Figure D-1) together with copies of the affected document. An alternative to these NATO NOR Form is allowable if approved by both the supplying and acquiring activities.

2.2 Notices of Revision may be submitted in one of the following formats:
a. NATO NOR Form describing the current and proposed data in block 13 of the NOR.
b. NATO NOR Form describing the current and proposed data on attachments to the NOR. Attachments to the NOR may be in the form of redlined drawings, “from”-“to” drawings or other documents.

2.3 Regardless of the method used to document the proposed change, the description of the proposed change must be clear, complete, and unambiguous, with both the original information and the proposed information clearly discernible.

3. Paragraph not used.

4. Paragraph not used.

5. DETAILED REQUIREMENTS. Detailed instructions for completion of the NATO NOR Form are as follows.
Block 1. Date submitted. Enter the submittal or preparation date of the NOR (e.g. 15 Apr 2010).

Block 2. PAN. To be used by the procuring activity for entry of internal processing number if required.

Block 3. ECP No. Enter the originator’s ECP or tracking number if required. Rev. Enter revision of ECP

Block 4. NOR No. Enter the NOR number. Number shall be enter in an x of y format (e.g. 1 of 3), with x being the current NOR, and y the total number of NORs in the ECP submittal.

Block 5.a-e. Originator Information. Enter the originator NCAGE Code, name, address, email and phone number of the originator of the NOR.

Block 6. Title of Affected Document. Enter the formal title of the affected document.

Block 7. Document NCAGE Code. Enter the NCage Code of the affected document.

Block 8. Document No. Enter the document number of the affected document.
Block 9.a. Revision. Enter the current (Block 9a) revision information of the document affected. Enter the PAN(s) and/or ECP No(s) (Block 9b) of any other approved outstanding un-incorporated ECPs for the current revision of this document.

Block 9.b. Other Unincorporated NORs. If there are other NORs approved against this revision of document but not yet incorporated, list those here.

Block 10. Sheet No. Enter the NOR sheet number when multiple NORs or continuation sheets are written against the same document.

Block 11. Configuration item (or system) to which ECP applies. Enter the item or system name to which the ECP applies.

Block 12. Description of revision. Describe the intended change. The description of change shall be clear, complete and explicit and be in a CHANGE FROM “original data” to CHANGE TO: “recommended data” format.

Block 13. Remarks/Rational. Indicate any remarks or rationale for this change information as necessary.

Block 14.a-b Check 14.a if the approved and signed NOR may be used for manufacturing purposes.
Check block 14b if the revised document must be received before manufacturing may incorporate the change. Block 15.a-e. Activity authorized to approve change. This block will be completed by the Configuration Change Approval Authority after determination of final disposition on the ECP. Signature of the Configuration Change Approval Authority constitutes the official change to the configuration baseline documentation.

Block 16.a-d. Activity accomplishing revision. This block will be completed after the new revised document prepared per the instructions of this NOR is released.

SRD-51.2.3. NATO Engineering Release Request (ERR) Form

INSTRUCTIONS FOR THE PREPARATION OF
ENGINEERING RELEASE RECORDS
UTILIZING NATO FORM ERR

1. GENERAL

1.1. Scope. This Appendix establishes uniform requirements for the preparation of the "Engineering Release Record".

1.2. Application. The provisions of this Appendix apply whenever the ERR is utilized to authorize use of new approved configuration documentation.
2. Paragraph not used.

3. Paragraph not used.

4. GENERAL REQUIREMENTS

4.1. NATO Form ERR. NATO Form ERR is not a requirement of this standard and is provided for reference only. ERRs may be prepared in contractor format.

4.2. Engineering Release Record. The contractor shall use an ERR to authorize the use of configuration documentation that establishes the functional, allocated, and product baseline documents or changes an established configuration baseline document.

5. DETAILED REQUIREMENTS. Detailed instruction for completion of the ERR.
Block 1. ERR NO. Enter the unique ERR identification number or the number assigned by the Government.

Block 2. Date. Entry will not be made in Block 2 until completion of Block 13 (Approved by) is
accomplished by an authorized official. The date of the completion of Block 13 will then be entered in
Block 2.

Block 3. Procuring Activity Number. Enter the PAN of the ECP upon which this ERR is based.

Block 4. ERR Page no. Enter the page number of the ERR form.

Block 5. Baseline Established or Changed. Check appropriate block to identify the configuration baseline established or changed.

Block 6. Type of Release. Check appropriate block to indicate whether release is establishing a baseline (initial) or a change to the established configuration baseline.

Block 7. ECP Number. Enter the ECP number and the date approved on the lines provided, when applicable.

SRD-51.2.4. NATO Request for Concession (RFC) Form

INSTRUCTIONS FOR THE PREPARATION OF
REQUEST FOR CONCESSION
UTILIZING CONCESSION

1. GENERAL

1.1. SCOPE. This Appendix establishes uniform requirements for the preparation of the NATO Form “Request for Concession”. This Appendix is a mandatory part of the standard.

1.2. APPLICATION. The provisions of this Appendix apply whenever NATO Form Concession is utilized to request a concession.

2. GENERAL REQUIREMENTS.

2.1. Use of NATO Form Concession. The supplier shall prepare and submit NATO Form Concession, Figure F-1, or an authorized alternative, to request concession from configuration documentation requirements.

2.2. Request for concession. The supplier shall request a concession when, prior to or after manufacture, it is necessary to depart temporarily from the applicable approved configuration documentation for a specific quantity of deliverable units. Normally, for the unit(s) affected, the different configuration will be permanent.

3. DETAILED REQUIREMENTS. Detailed instructions for completion of the NATO Form Concession.

Block 1. Date Prepared. Enter the date RFC prepared in the format DD-Mon-YYYY, e.g. 01-Jan-2010.

Block 2. Procuring Activity Number (PAN). To be used by the procuring activity for entry of internal processing number if required.

Block 3. RFC NO. Enter the originator internal RFC or tracking number if required.

Block 4. Title of Concession. Enter a title to describe the Concession.

Block 5. RFC Priority. Enter the RFC Priority.

Block 6. Concession Request Pre or Post Production. If the request for concession is requested prior to manufacture of the item, check Pre-Production (i.e. concession requested prior to need, formerly Request for Deviation). If the need for the concession is identified after the item(s) manufacture, check Post-production (i.e. concession requested after the fact, formerly Request for Waiver).

Block 7. Baseline affected. Enter the affected baseline.

Block 8.a-c. System Information. Enter the model or type designation, e.g. M16, Mk48, F22, etc.,
System/Configuration item nomenclature and end item NCAGE Code.

Block 9. Affected Item Nomenclature. Enter the name of the part/assembly affected.

Block 10. Part Number(s) of Affected Item. Enter the part number of the item containing the defect.

Block 11.a. Other External System Affected. If the proposed change impacts another system (e.g., interfacing system, training device, and test sets), check yes in this field, otherwise check no.

Block 11.b. List Other Systems or Configuration Items Affected. If block 11.a. is checked yes, list other systems affected.

Block 12.a-c. Classification of Defects. Enter the defect classification, defect no. (if applicable) and the document used to define or classify the defect (if applicable).

Block 13. Description of Concession. Describe the nature of the proposed departure from the technical requirements of the configuration documentation. Marked drawings or other documents should be included when necessary to describe the concession.

Block 14. Need for Concession. Explain why it is not possible to comply with the configuration documentation within the specified delivery schedule. Also, if applicable, explain why a concession is proposed in lieu of a permanent design change.

Block 15. Corrective Action Taken. Describe action to prevent a future recurrence.

Block 16. Effect on performance, function, reliability, durability, integrated logistics support. The concession shall be analyzed to determine if it affects any factors listed on NATO Form ECP (Page3).
Describe any effect on these factors.

Block 17. Recurring Concession. If the same concessions been requested previously, check yes here.

Block 18. Effectivity. Describe the effectivity over which this concession applies. May be listed by quantity, lot number(s), serial number(s) or date(s), or a combination thereof.

Block 19. Per Unit Cost Impact. Enter the estimated cost impact of the variance. If cost decrease, enclose quantity in parentheses.

Block 20. Total Cost Impact. Enter the total cost impact of the affected concession. If cost decrease, enclose quantity in parentheses.

Block 21. Effect on Delivery Schedule if Rejected. Describe the effect on the delivery schedule if the concession is rejected.
Block 22.a-b. Contract Information. Enter the contractor name, contract number and line item of the affected item.

Block 23.a-c. Contracting Officer. Enter the procuring activity’s contracting officer name, telephone and e-mail.

Block 24.a-e. Originator Information. Enter the originator, name, address, NCAGE Code, email and telephone number of the originator of the request for concession.

Block 25.a-c. Submitting activity. An authorized official of the activity entered in Block 24 shall sign in this block and enter name and title.

Block 26.a-d. Recommendation. This block will be completed by the activity making a recommendation to the Configuration Change Authority.

Block 27.a-d. Disposition. This block will be completed by the Configuration Change Authority authorized to make the decision on the request for concession.

SRD-51.3. Baselines

ENTERPRISE BASELINE

This is the first baseline established in the configuration management process. The enterprise baseline has an administrative hierarchy that represents the design basis for a business enterprise. It is created from associated business regulations, strategic plans, operating standards, and administrative procedures that describe the core business processes. The product and platform baselines listed below have physical item hierarchies that are associated to the enterprise baseline items that contain acquisition process statutory and regulatory requirements for developing, producing, operating and maintaining designs.

FUNCTIONAL BASELINE

This baseline is established as a direct result of the acquisition process regulations to perform configuration management. The functional baseline is a collection of configuration items identified prior to the System Requirement Review (SRR) held during the Development phase; depending on design maturity when entering the acquisition process. Upon completion of the SRR, the functional baseline is validated against the hierarchal structure associations to the enterprise baseline items. The approved baseline is a combination of all items from the enterprise baseline plus all items from the functional baseline.

ALLOCATED BASELINE

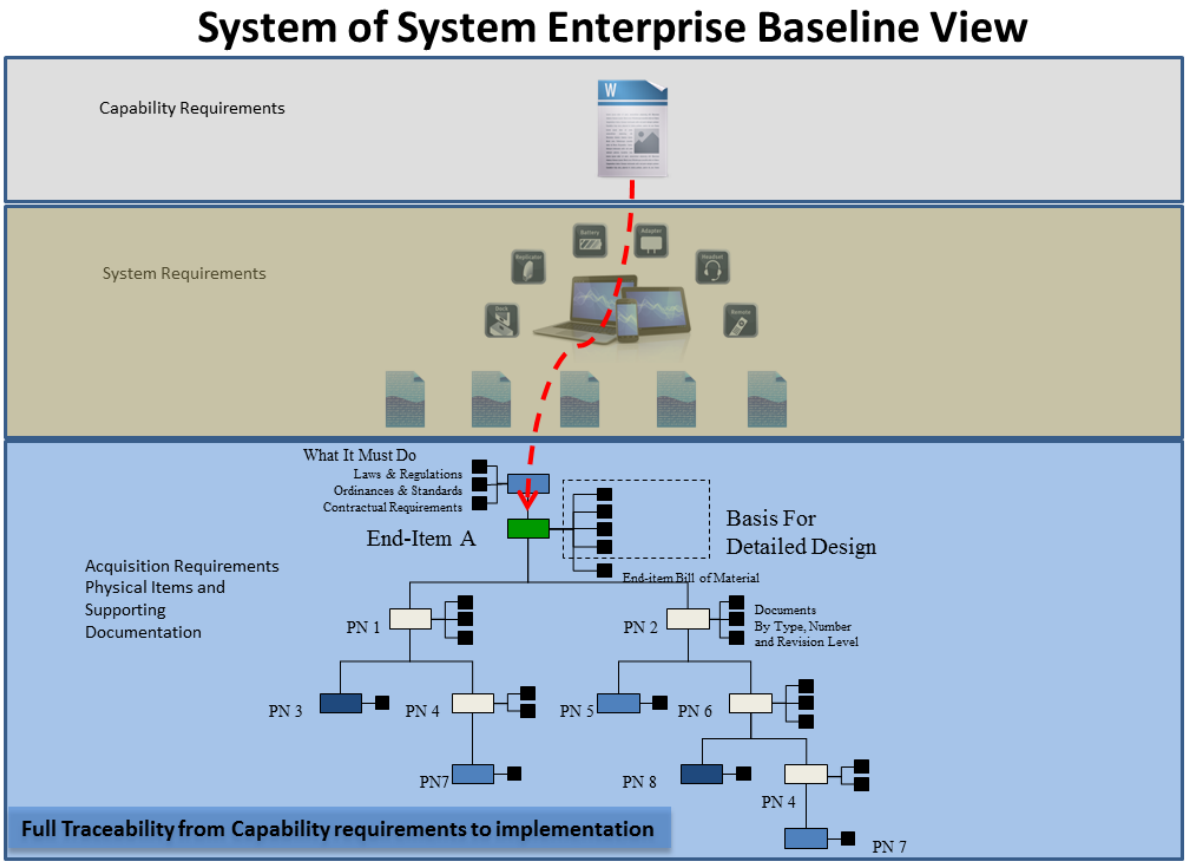
This baseline is established as a direct result of the acquisition process regulations to perform configuration management. The allocated baseline starts from the functional baseline configuration items when functional requirements have been allocated to major end-item products in the system prior to the System Requirement Review (SRR), but not later than the Preliminary Design Review (PDR) held during the Development phase depending on design maturity when entering the acquisition process. Upon completion of the PDR, the allocated baseline is validated against the hierarchal structure associations to the functional baseline items. The approved baseline is a combination of all items from the functional baseline plus all items from the allocated baseline.

PRODUCT BASELINE

This baseline is established as a direct result of the acquisition process regulations to perform configuration management. An initial product baseline starts from the allocated baseline configuration items when physical products and documentation are created in association with the allocated end-item products prior to the Critical Design Review (CDR) held during the Development phase of the acquisition process. The initial product baseline is validated during the Functional Configuration Audit (FCA). The final product baseline is validated during the Physical Configuration Audit (PCA) held in the Production phase of the acquisition process. Upon completion of the CDR, the product baseline is validated against the hierarchal structure associations to the allocated baseline items. The approved baseline is a combination of all items from the allocated baseline plus all items from the product baseline.

BASELINE HIERARCHAL STRUCTURE

The diagrams below provide a visual conception of the baselines described above with the physical items and associated documentation. The information shown is only a small representation of the configuration items that would be contained in each baseline depicted.



SRD-51.4. CM Checklists

SRD-51.4.1. Configuration Item Selection Criteria Checklist

The Configuration (CI) designation is a convenient way to refer to items (hardware, software or firmware) that have separate requirements, specifications, may be separately developed, and are an item to which the effectivity of changes to its components is addressed. A CI is designated for separate configuration management because they satisfy an end use function; they are usually serialized, and are often the subject of design reviews and configuration audits. An item is considered to be a CI if it meets one or more of the following criteria:

#	CI Selection Criteria	Yes	No
	The item is required in the top-down breakdown hierarchical identification of all configuration items in the baseline structured tiers.		
	The functional assembly is clearly identifiable in the top-down breakdown hierarchical structured tiers.		
	The item interfaces with an existing item already identified as CI.		
	The item is a software program or computer program package.		
	The item is critical and failure would have significant impact.		
	Any item that is required to have an accurate record of the item's exact configuration (configured state).		
	Any item that requires an official change request be processed and approved.		
	The item will require development of a new design.		
	The item will require development of a modification to an existing design.		
	The item implements critical capabilities: a. Security b. Safety of personnel or equipment		
	The item will be independently tested.		
	The item is procured and under government control.		
	The item will require separate designated variances, versions or nomenclatures.		
	Documentation that supports an item owned by the program.		

SRD-51.5. CM PDM/PLM Applications

Configuration Management Tools are essential for effective and efficient CM processes. They can enhance many of the CM activities but they do not assure the CM processes and information being automated are correct, efficient or effective.
It is essential to choose a CM system that meets and relates to your Business Picture/Processes.
There is a variety of different types of tools providing Configuration Management functionalities. These tools are covering many different areas within the life of a system. This relates, but is not limited to:

- Requirement Management
- Product Data Management (PDM)
- Product Life cycle Management (PLM)
- Application Life cycle Management (ALM)
- Software CM Tools for Version Control, Build, Release and Deployment
- ECAD, MCAD systems
- ITIL CMDB
- Etc.

Automated CM Tools Lessons learned:

1.) Buying a tool will not establish an appropriate CM organization
2.) It is unlikely that a single CM tool accommodates all CM requirements across all platforms.
3.) Tools used during one life-cycle phase might not be suitable during another phase
4.) Consider procurement and life cycle costs before acquiring CM tools.
5.) Consider easy data exchange mechanisms as you might have to exchange data with different internal and external stakeholders.
6.) Establish first your CM requirements and processes and analyse which tools complies best to them.

Considerations during the Evaluation and Selection of CM tools

1) Know your users – It is important to understand the requirements and perceptions of your future users. Making their life easier should be one an important goal. They might not exactly know what they need but they might have some complaints, suggestions or other hints that will help you understand them.
2) Understand todays CM technology. Technology is changing fast and it might not be the same anymore then during your last analysis on CM tools. Make sure you have a good overview of the market so you will not miss any new capabilities available.
3) Understand your CM environment. There are many definitions of CM. But the scope of CM is so wide and varied, you need to understand where you stand. Are you interested in Software CM? Yes, but for an traditional or Agile process? Do you need the tools for through life CM or just one specific phase in the life cycle? Will you use the tool for enterprise CM or just asset management? Do you need automated workflow capabilities? There are a lot of considerations which leads to the selection of your tools suite. Consider them before you select a specific application. Which tools are used by other stakeholders with which you might have to exchange data?
4) Derive from your enterprise CM requirements the CM tool requirement. Once your CM tool requirements are defined, documented and approved start the CM tool evaluation process.
5) Establish an evaluation process and an evaluation matrix to evaluate possible CM tools in the most objective way.

6) Be a Paradigm Pioneer-How can a CM system grow my organizations business.
7) Establish a contemporary Configuration Management environment which ensures Configuration consistency of products throughout the life cycle of a program for your Customer.

Key Considerations for a CM System

Choose a CM tool:

a) that is “Intuitive” it will
- ease of Training personnel-Less Cost
- ease in setting up system/updates-Less Cost.

b) that provide a friendly Graphical User Interface (GUI) for viewing, entering and manipulating data.
c) that supports your required CM Standards.
d) that accommodates your CM requirements and processes.
e) allows “Customer Access” through Security/Access Control

Examples for Enterprise and Hardware CM Processes

For…	The Process must have	The Tool must have
Management and Planning	Standardized Baseline Format	Able to provide a standardized metadata template for each type of baseline
Management and Planning	Where-Used	Able to identify all active applications for any primary or secondary physical item or document
Configuration Identification	Configuration Identification Schemes	Baseline formats and data fields for the product, facility or IT system
Configuration Identification	Functional, Allocated, Product, As-Planned, As-Released, As-Is Baselines	Baseline formats and data fields for the product, facility or IT system
Configuration Identification	Change Process Updates to Baselines	Updated baselines from change process implementation
Configuration Identification	Planning data	Updated baselines from planning data derived from change process
Configuration Identification	Effectivity and History for superseding items and documents	Superseding items and documents moved into a history file
Configuration Identification	Current Configuration Plus Planned Changes	Physical item linkages to the planned changes
Configuration Identification	Hierarchy of Requirements	Display the parent to child relationships between physical items using bill of materials which identify type, number and revision level
Configuration Identification	Physical Items and Documented Requirements	Provide a indented (fully exploded) view of the physical (primary) item contained in each end-item product, facility or IT system
Configuration Identification	Identification of Primary Physical Items	Compare primary items contained in two or more bills of materials and identify their similarities and differences

Configuration Identification	Identification of Secondary Physical Items	Able to display the linkages from each secondary item to its documented requirements
Configuration Identification	Identification of Primary Documents and Linkages	Able to display the linkages from each primary item to its own unique set of design and process requirements (or primary documents)
Configuration Identification	Identification of Secondary Documents and Linkages	Able to display the linkages from each primary process document for each primary item to the secondary item
Configuration Identification	Baseline for End-Item Products by Model Number	Able to display the views of any end item product by model number, serial number, CAGE code, name or description
Change Control	Change Authority for each version of document	Workflow to process and approve changes
Change Control	Release and Effective Dates	Standardized metadata fields to display the planned and actual release data for each primary document
Change Control	Change Effectivity	Display the effective date and owner for each primary document
Configuration Status Accounting	Baseline Content Derived from Approved Changes	Able to provide views of any physical item and access to any document by “clicking” on that item or document (when access is authorized)
Configuration Status Accounting	Baseline Records	Able to provide views of baseline records in standardized report with print capability
Configuration Status Accounting	Previous Versions of a Baseline	Retrieve previous versions of the baseline from the baseline history by change number, date or effectivity
Development	Development Work and Responsibilities	Document owner requirements
Development	As-Planned baseline items	Place holders used in the baseline to reserve a place for documents being created and physical items being procured or developed
Development	Indenture Levels	Requirement for documents and Physical Items to reside at structured levels
Development	Work Breakdown Structure	Development is created and maintained within the baselines
Naming and Numbering	Standardized Naming Conventions	A controlled list of nouns that users select to assign appropriate name to each item
Naming and Numbering	Standardized Numbering Conventions	Automatically assign internal numbers to items
Naming and Numbering	Equivalent Item / Alternate Item	Cross reference primary records and provide equivalent or alternate records

Naming and Numbering	Document Numbering Scheme	Use key attributes to automatically number documents
Naming and Numbering	Standardized Descriptions	Accept attributes for each item and prompt users to select key attributes
Naming and Numbering	Re-Use	Sort population of items by name, description and display results for possible redundancies or potential reuse.
Data and Record Integrity	Controlled Data	Specific data elements to be formally controlled are system identified
Data and Record Integrity	Read Only Access to Controlled Data	Read-only access to controlled data is system-limited to authorized personnel
Data and Record Integrity	Data Entry of Controlled Data	Entry of a controlled data element or a change to a controlled data element is system-limited to its assigned creator or owner
Data and Record Integrity	Validation of Data	Validation that a data element was entered correctly is system-prompted to perform the validation
Data and Record Integrity	Standardized Metadata formats	Metadata templates are standardized for item type (Physical item records or documents)
Data and Record Integrity	Metadata access	Metadata can be viewed at the degree authorized
Data and Record Integrity	Data transaction history	Added, changed and deleted information is retained for a predetermined period of time
Data and Record Integrity	Data access history record	Record is created for each instance of access to reveal who actually accessed the data and when
Validation and Release Records	Document Owners	System recognizes the assigned creator and designated user for each document through its metadata
Validation and Release Records	Release of Documents	System will not allow a document to be released for use until the validated effectivity has been reached and a system-generated record is created
Validation and Release Records	Document Revision and Change Authority	System knows the revision level of each released document and its change authority
Validation and Release Records	Document Release Record History	System maintains history of all document release records which may be accessed by document number, revision level or release date
Changes and Revision Records	Closed-Loop Change Process	Includes workflows which emulate change traceability

Changes and Revision Records	Standardized Change Process	Standardized system-generated to provide a complete trail of how each version evolved from the previous
Changes and Revision Records	Action Tracker	A change task-tracking system which includes a workspace for detailed plans
Changes and Revision Records	Notification of Task	Automatic notification of task created, assigned, updated or completed
Changes and Revision Records	Standardized Task List	System-generated task list to select actions with a standard lead time indicator
Changes and Revision Records	Actual versus Planned Tasks	Tracks actual versus planned task completions and provides alerts when task completions are delinquent
Changes and Revision Records	Updates to baselines	System automatically updates each impacted baseline from each approved change as managed in the change task-tracking system
Changes and Revision Records	Implementation Status for Approved Changes	Report the implementation status of each approved change and provide task completion performance
Changes and Revision Records	Load versus Capacity	Able to extend projected workloads for each task and provide alerts for periods in which workloads exceed capacity
Validated Records	Records for MAKE items	Record is system-generated from its work authorization, inspection/test and acceptance
Validated Records	Records for BUY items	Record is system-generated from its purchase order, inspection/test and acceptance
Validated Records	Records for Compiled Software items	Record is system-generated from its work authorization or purchase order, inspection/test and acceptance
Validated Records	Records for In-Service Modifications	Record is system-generated from its work authorization, inspection/test, acceptance and completion notice
Validated Records	Record Retention and Security	Records are trained by the system and are protected in accordance with the required level of security
Validated Records	Retrieval of Records	Retrieval of, or access to, records is system-limited to authorized personnel
Information Systems	Enabling Software Tool Functionality	Must support the core business process infrastructure as described in the standard process documentation
Information Systems	Interfaces with Other Systems	Enabling tools must be interfaced in a manner in which individual data elements may be entered only once and reused throughout the

		integrated systems as needed without re-entry
Information Systems	Disaster Files and Back Up Systems	Enabling tools must continue to function in the event that primary systems and/or primary data are lost, disabled or compromised
Asset Management	Top and Bottom Limits of the Physical Item Hierarchy	Application requirements extend from Level 0 and the design basis at Level 1 to the lowest replaceable unit at the bottom
Asset Management	Operational Status	Each operational status is kept current within the system and visible to authorized personnel at all times
Asset Management	Maintenance Tasks and Schedules	Standardized maintenance tasks are identified and scheduled
Asset Management	Workloads versus Capacity	Able to extend scheduled tasks and provide alerts in those cases where workloads exceed capacity
Asset Management	Control of Life Limited Items	System maintains metadata that defines life limitations for each item
Business Program Management	Schedule and Cost Performance	Able to compare actual costs to planned costs and actual task completions to planned completions to provide a schedule and cost performance report
Engineering	Baseline for Engineering Standards	Able to maintain linkages to align engineering standards used by the enterprise and provide placeholders
Engineering	Standard Part Catalogues	Links to existing part information to be used and cross referenced in an equivalent record
Engineering	Visibility of superseded and superseding	Display records that include the change authority and the effective date
Contracts	Standardized Language	Contractual language is standardized and key requirements are included
Contracts	Validation of Configuration	Able to verify that the basic configuration and all customer-selected options are compatible
Contracts	Validation of Delivery Schedule	Able to compare the requested delivery schedule to the production plan and master schedule and verify that they are compatible
Contracts	Calculation of Margin	Able to compare the sale price of the as-ordered configuration to its rolled up costs and display the margin
Supply Chain Management	Supplier Baseline	Key characteristics of each supplier are identified and maintained

Supply Chain Management	Master Schedule	Each family of like end-items have a master schedule which is used to define the customer-selected options required

SRD-51.6. Configuration Management Competency Development Model (CDM)

CM CDM Methodology:

In order to ensure that sufficient Configuration Management experts are available, NATO recommends Competency Leads to develop and maintain Competency Development Models (CDMs) as a guide for individual development. CDMs are designed to assist a CM professional in tailoring an Individual Development Plan (IDP) that reflects unique developmental needs for the desired level of capability. Provides a developmental roadmap for acquiring knowledge and promotes continuous learning in configuration management. The CDM helps facilitate discussions on training needs and developmental assignments to gain experience. When used together, the CDM and IDP will help an employee reach their full potential and will help to ensure they are capable of supporting organizational requirements.

Competency Development Model vs Performance Management:

The CDM does not replace established performance management processes and is not a tool for performance management. It is not intended to be a performance objective. The CDM does provide the ability to develop additional configuration management capabilities and allows for increasing employee capability that is measured by advancement along the stages. The CDM is not the sole source for promotion decisions. It provides a recommended path for growing CM capability, but it does not assess the quantity and quality of actual work performance.

CDM Structure:

The CDM Structure has three dimensions and four stages. The three dimensions describe the assignment/experience, Knowledge Skills and Abilities (KSA), and Leadership proficiencies for a configuration management professional. The four stages express the level of capability for the configuration management professional.

The three dimensions include the following:

- Assignments/Experience; Assignment describes the types of tasks, duties, roles, etc. that an individual performs while experience captures the employees increasing capability he or she may be having within the configuration management competency.

- Knowledge Skills and Abilities (KSA) outlines mandatory and desired certifications, qualifications, licenses, education, and specialized training required by the configuration management competency.
- Leadership. Identifies the Leadership Core Proficiencies that are desired for a configuration management professional.

The four stages include:

- Entry is the most basic developmental level. It applies to individuals who are new to the configuration management competency and are capable of performing well with supervision. Efforts involve applying basic CM concepts and principles with significant support from other configuration management personnel.

- Intermediate is the stage that represents individuals who have gained capability within the configuration management competency and can operate independently for a wide range of efforts to include involvement in an integrated process team environment.

- Advanced is stage is level those individuals who are capable of leading, managing and mentoring multiple teams or large groups. Efforts involve interaction with other CM professionals and functional leadership at the enterprise level.

- Expert stage is those individuals that are sought out for consultation and assistance. They develop CM policy and strategies while interfacing with senior-level counterparts within the enterprise and in other organizations.

Competency Definition:

A structured, disciplined process that provides a common approach to minimize variation and ensure consistency between a product or service and its requirements, performance, physical attributes, design and operational information while applying configuration management and planning, configuration identification, configuration control, configuration status accounting, configuration verification and audit functions in a closed-loop evolution allowing for clear, concise and valid information..

Competency Function:

Configuration management is founded on a set of principles and practices that all derive from a single universal goal: the management of information. It is a common and repeatable way to implement core CM functions that provide the basis for a value-based assessment of tasks needed to manage the process as a sequence of well-defined work activities that lead to a repeatable and predictable outcome. The purpose of process is to take that sequence of activities we already know how to do successfully, and package them so they are entirely predictable and invariably successful.

Stage	Assignments/ Experience	Knowledge, Skills & Abilities	Leadership Core
Entry Applies to individuals new to the CM competency or functional area and are capable of performing well with supervision. Efforts involve applying basic CM concepts and principles with significant support from other CM personnel.	**Positions** • Configuration Management Specialist (CMS) I • Configuration Management Specialist (CMS) II • **Education** • High School Diploma or equivalent • Associates Degree (as applicable to field of study) • Basic CM Certification by accredited industry partner with university sponsor • Certification in business, technical, logistics or managerial field **Experience** • 0- 3 years in a CM position or performing CM tasks and activities **Training** • Configuration Management • Basic CM Certification by accredited industry partner with university sponsor	**Development Objectives** • The five pillars/functions of CM: Configuration Management and Planning Configuration Identification Configuration Control Configuration Status Accounting Verification & Audit • Awareness of CM policies, standards, handbooks, plans, processes and best practices • Requirements linkage to products or services • Communication efforts to accommodate change, optimize standardization and keep requirements clear, concise and valid • Consistent conformance with data, document and requirements management • Release management; The process of documents being validated prior to release and released prior to use • Metric collection to analyze data for process improvements • Awareness of CM financial requirements • Introduction to CM contractual responsibilities • Technical baseline management fundamentals • Understands baseline management to other CM pillars • Uses information and data to enable authorizations, releases, control and record activities • The fundamentals of the Defense Acquisition Cycle to manage physical items, documents, information, data, and records within the proper baselines • Configuration management processes within a multifunctional synergistic environment	**Proficiencies:** • Detail Oriented • Organized • Teamwork • Critical Thinking • Can-Do Attitude • Continual Learning • Customer Focus • Communication o Oral o Written • Accountability
Stage	**Assignments/ Experience**	**Knowledge, Skills & Abilities**	**Leadership Core**

Intermediate Applies to persons with moderate experience in a competency or functional area that can operate independently in a wide range of efforts. Efforts involve working within the IPT structure or for leading IPT efforts.	**Positions** • Configuration Manager (CMGR) • Configuration Management Specialist (CMS) III Education • High School Diploma or equivalent • Baccalaureate Degree (as applicable to field of study) • CM Certification for software and comprehensive principles • Certification in a business, technical, logistics or managerial field Experience • 3+ years in a CM position or performing CM tasks and activities Training • Met applicable Entry Stage requirements • Software and comprehensive configuration management principles by industry partner with university sponsor	**Development Objectives** • Met entry level stage development objectives • Translates CM acquisition and sustainment strategy into an approved and released CM Plan (CMP) • Creates and manages baselines; ensures proper linkages between products and their defining documentation and data • Coordinates internal and external interface requirements • Implements Life Cycle Configuration Management processes • Collects metrics and analyzes data to determine process improvements • Strives for continuous improvement • Develops or supports the business process infrastructure • Provides input into Planning, Programming, Budgeting and Execution (PPBE) process • Provides CM training to staff and suppliers • Determines Supplier data sharing processes and their compatibility with established CM standards • Identifies configuration items based on specified criteria • Implements a closed-loop change process involving all functional activities and competencies • Defines CM contractual and data requirements in contracting strategy and contractual documents • Builds physical item hierarchies comprised of system, equipment and components • Creates System of Systems (SOS) or Family of Systems (FOS) hierarchical structures • Implements the nomenclature request process requirements • Improved information integrity by establishing proper ownership and	**Proficiencies:** • Detail Oriented • Organized • Teamwork • Critical Thinking • Can-Do Attitude • Continual Learning • Customer Focus • Communication o Oral o Written • Accountability • Creativity • Problem Solver • Manage Process Relationships • Change Management

		approval of product defining information	
Stage	**Assignments/ Experience**	**Knowledge, Skills & Abilities**	**Leadership Core**
Advanced Applies to persons with significant experience in a competency or functional area who are capable of leading, managing and mentoring multiple teams or large groups. Efforts involve interaction with CM counterparts at the enterprise level, from supplier organizations, and leaders from other functional areas.	**Positions** • Assistant Program Manager Configuration Management (APM – CM) • Configuration Management Director (CMD) Education • High School Diploma or equivalent • Baccalaureate or Masters Degree (as applicable to field of study) • CM Advanced Certification • CM Assessors Certification • Certification in a business, technical, logistics or managerial field Experience • 6+ years in a CM position or performing CM tasks and activities Training • Met applicable Intermediate Stage requirements • CM Advanced/Assessor course by industry partner with university sponsor	**Development Objectives** • Met intermediate level stage development objectives • Understands principle regulations governing defense acquisition and sustainment support • Establishes CM acquisition and sustainment strategies via approved and released organizational CM standards • Identifies CM roles and responsibilities • Establishes and documents CM policy • Ensures that change requests address risks, cost, schedule, and performance impacts during the planning, acquisition, fielding, sustainment and disposal of systems • Establishes guidance when instructions and procedures do not exist or when there are differences of opinion and approaches within CM community • Provides budget requirements for CM personnel, training, equipment and automation • Establishes contractual language for CM tasks and deliverables • Determines CM incentives and disincentives for supplier requirements • Manages inputs to new baselines with current initiatives • Collect CM program metrics and analyze data to determine process improvement methods • Coordinates efforts between programs for CM data involving SOS or FOS interfaces	**Proficiencies:** • Detail Oriented • Organized • Teamwork • Critical Thinking • Can-Do Attitude • Continual Learning • Customer Focus • Communication o Oral o Written • Accountability • Creativity • Problem Solver • Manage Process Relationships • Change Management • Training • Mentoring • Leveraging Diversity • Resource Financial Management • Entrepreneurship

		• Can manage alteration information, system hierarchy structure, and requirement documents • Can solve technical challenges within the CM process and change request details and recommendations • Leads government and industry teams to resolve complex CM issues that fail to meet requirements	
Stage	**Assignments/ Experience**	**Knowledge, Skills & Abilities**	**Leadership Core**
Expert Applies to recognized experts in Configuration Management with a decade or more experience in a competency or functional area. Efforts include providing CM guidance and consultation to constituents, establishing and implementing CM policy and strategy and interfacing with senior-level counterparts in other services, agencies or organizations.	**Positions** • Configuration Management Technical Process Owner (CM TPO) • Assistant Program Executive Officer Configuration Management (APEO-CM) Education • High School Diploma or equivalent • Baccalaureate or Masters Degree (as applicable to field of study) • CM Masters Certification • CM Professional Certification Experience • 10+ years in a CM position or performing CM tasks and activities • Recognized CM Subject Matter Expert (SME) Training • Met applicable Advanced Stage requirements	**Development Objectives** • Aligns CM strategies with Team SPAWAR and CNO/OPNAV goals • Provides information regarding CM resolutions and their effects to industry, Congress, OSD and Joint Staffs • Serves on National and International government and industry teams to resolve complex issues relating to CM • Maintains relationships with industry partners and external agencies to stay abreast of CM best practices • Presents solutions to SOS interfaces, new baselines or changes to a baseline • Promulgates Life Cycle Configuration Management (LCCM) Organizational Standard Process (OSP) that aligns CM efforts to requirements for all competencies: o Defines CM requirements for all appropriations and lifecycle phases o Creates standard workflows for CM functions, activities and tasks o Establishes CM policies and procedures o Ensures CM workforce manages to requirements o Monitors process adherence to CM goals and objectives	**Proficiencies:** • Detail Oriented • Organized • Teamwork • Critical Thinking • Can-Do Attitude • Continual Learning • Customer Focus • Communication o Oral o Written • Accountability • Creativity • Problem Solver • Manage Process Relationships • Change Management • Training • Mentoring • Leveraging Diversity • Resource Financial Management • Entrepreneurship • Influence • Negotiation • Partnering • Public speaking • Strategic thinking • Visionary

		• Develops and leads a skilled workforce that supports and accomplishes CM activities • Conducts assessments, evaluations and audits of CM processes to measure and validate results for continuous process improvement • Track configuration management adherence to ensure goals and objectives are accomplished • Strong meeting facilitation and training to enable proficient CM	